

## Why an Independent Review...Why a Standing Review Board?

Relationship among the Standing Review Board, the Programmatic Authority, and Institutional Authorities (including the Technical Authorities): As noted above, the SRB has the responsibility to independently assess the program/project as a whole including the relevant programmatic and institutional authority elements as the program/project prepares to meet its life cycle milestone requirements. The SRB review includes assessing the programmatic side including accomplishments in fulfillment of programmatic requirements as well as program/project designs, interfaces, interactions, and processes. It also includes assessing the adequacy of the institutional side's support including the Center support and whether the proper technical standards, processes, and practices are being applied.

The Mission Directorate Associate Administrator is the Programmatic Authority for the programs and projects under his/her purview. In this role, the Mission Directorate and the Mission Directorate Program Management Council have the responsibility of periodically evaluating the cost, schedule, risk, technical performance, and content of the program/project. The evaluation focuses on whether the program/project is meeting its commitments to the Agency.

The CD (as the head Institutional Authority includes being the head Technical Authority for projects at his/her Center) has the responsibility to know and understand the work hosted at his/her Center and to ensure that it is being performed in accordance with the agreed-upon standards applicable to it.

In brief, both the Mission Director and the Center Director need to know that good engineering practices are being employed, good technical decisions are being made, sound requirements are being established, risks are adequately characterized and addressed, plans are reasonable, etc. Since the Technical Authorities are involved in the development of the program/project, they too are subject to review by the SRB. In this case, the assessment would include determining whether the Technical Authorities have properly evaluated and dispositioned waivers, applied the correct standards, provided the needed support to maximize the likelihood of success, etc. Similarly, for the programmatic side the SRB will evaluate the cost performance, team leadership, etc.

Depth of Standing Review Board Review: In accomplishing independent review of a program/project the specific needs of the applicable programmatic Decision Authority, Technical Authority, and the Associate Administrator, PA&E are documented in the Terms of Reference (ToR) for that review to assure that the right topics are covered and at the proper depth to meet their needs. NPRs 7120.5 and 7123.1 were written with the general needs in mind and cover most of the topics for a review. However as an example, the Mission Directorate may need an additional area evaluated or may chose to deemphasize a given area as determined by the specific characteristics of the program or project being reviewed and this would be included in the ToR.

The depth of the independent review, as required by the NPRs, is the depth at which the SRB can tell that the entire design holds together adequately, and that the analyses, development work, systems engineering and programmatic (e.g. cost, schedule, etc) support the design and the decisions that were made. Typically, this requires evaluation of the work at the system level (e.g. propulsion), at least. For critical or complicated systems, the SRB may look at lower levels (e.g., parachutes for EDL). Since the SRB will evaluate the program/project after it has completed its internal work required for the milestone, the program/project may be required to present their results in a single meeting<sup>[1]</sup>. If approached in this manner, a typical agenda for a milestone review might be as follows:

Purpose of review & charge to SRB	SRB Chair
Project overview & status	Project Manager
System engineering & status Requirements & V&V plans Trade studies Technical margins	Project SE
WBS-level 2 design state & status for each area System design Key requirements Trade studies Technology readiness Acquisition strategy & long lead Logistics & facilities Challenges & risks	WBS Managers
Integrated system (e.g. power) state & status for each area	Discipline Leads
I & T	Integration Manager
S&MA	S&MA Manager
Human rating	Project HR Rep
Risk	Risk Management
Schedule	Project Planner
Cost	Cost Manager
Wrap up	Project Manager

The work of the SRB can be made more efficient if supported by and integrated with the Program, Projects, Mission Directorates, and Center's internal evaluations noted above. If lower-level assessments of the work being performed (e.g., internal review of the parachute design, thermal design, etc.) are conducted, the results of these assessments can be flowed up to the SRB or the SRB can be invited to participate in them. Many of the system/discipline level topics above might be satisfied by this approach, although the SRB will need to review how well these areas hold together at the top level.

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[1] Other approaches to providing the SRB with the information above may be acceptable.